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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/785,060

02/25/2004

Jim Threlkeld

248993US23

8942

22850 7590 02/05/2007

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EXAMINER

MERCIER, MELISSA S

ART UNIT

PAPER NUMBER

1615

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/05/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/785,060	<b>Applicant(s)</b> THRELKELD ET AL.	
	<b>Examiner</b> Melissa S. Mercier	<b>Art Unit</b> 1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 15-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1, 3-11 and 15-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12-27-06</u> . | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### **Summary**

Receipt of Applicant's Remarks and Amended Claims filed on December 27, 2006 is acknowledged. Applicant has canceled claims 2 and 12-14. New claims 19-34 have been added by Applicant in response to the Office Action dated June 27, 2006. Claims 1, 3-11, 15-34 are pending in this application.

Applicants' arguments, filed December 27, 2006 have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous Office Actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

### ***Information Disclosure Statement***

Receipt of the Information Disclosure Statement filed on December 27, 2006 is acknowledged.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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1. Claims 1, 4, 11, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omura (US Patent 6,384,254).

Omura teaches a fiber or fabric treating agent composition comprising the quaternary ammonium salt-containing polysiloxane as a main component. "A variety of fibers and fibrous materials can be treated with fiber or fabric treating agent composition, by adjusting the emulsion of the composition to a suitable concentration, and applying the emulsion to fibers or fabrics as by dipping, spraying or roll coating. As a general rule, an appropriate coating weight of the quaternary ammonium salt-containing polysiloxane is about 0.01 to 10% by weight based on the weight of the fibers or fabric. The coated fabrics are then dried by hot air blowing or in a heating furnace. The drying conditions include about 100-150 degrees C" (column 8, lines 4-18).

Omura does not disclose reusing the bath in order to treat a second item.

It would have been obvious to a person of ordinary skill in the art to reuse the bath in order to treat a second item. The limitation of "reusing the bath in a further immersing step on a second composite item" is with the knowledge of one of ordinary skill in the art.

Applicant is reminded that where the general conditions of the claims are met, burden is shifted to applicant to provide a patentable distinction. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. See *In re Aller*, 220 F.2d 454 105 USPQ 233,235 (CCPA 1955).

***Response to Arguments***

Applicant's arguments filed December 27, 2006 have been fully considered but they are not persuasive. Applicant argues, "at column 7, lines 24-59, the treating agent of Omura is prepared by first dissolving the polysiloxane in an organic solvent, or by emulsifying using one or more types of emulsifiers". While Omura discloses an emulsion of the of the quaternary ammonium salt-containing polysiloxane typically prepared by dissolved the salt in an organic solvent, it is noted that water is then added, making it an aqueous solution (column 7, lines 55-59). Additionally, Omura discloses, "the emulsion may be prepared by mixing the organopolysiloxane with a surfactant and emulsified in water" (column 7, lines 60-62).

2. Claims 1, 3-4, 7, 9, 11, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rubin et al. (US Patent 5,565,265) in view of Omura et al. (US Patent 6,384,254) or vice versa.

Rubin teaches "a liquid and stain resistant, antimicrobial fabric. A coating composition comprising a copolymer composition, an antimicrobial agent and a fluorochemical composition are applied to fabric to produce the coated fabric" (abstract).

**Formulation A of Specific Example 1 (coating composition) comprises:**

Acrylic Polymer (5-10% weight)

Fluorochemical (4-8% weight)

Biocide/Mildewcide (0.25-1% weight)

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Water (remainder to 100% weight).

**Formulation B of Specific Example 2 comprises:**

Acrylic latex polymer (90-95% weight)

Fluorochemical (4-6% weight)

Biocide/Mildewcide (0.25-1% weight)

Thickener (1-3% weight)

According to Specific Example 2 (method of coating fabric using Formulation A), "fabric is placed on A Frames and then placed on a tenterframe. The fabric is then coated with all the ingredients in liquid form. On the first pass, the fabric is completely wet. It is then passes through an oven at approximately 300 degrees F to about 350 degrees F" (column 3, lines 52-64). The examiner is interpreting the method steps to indicate the fabric being completely submerged into Formulation A, removed from the bath, and then dried.

Regarding Claim 3, Specific Example 2, further teaches "formulation B is applied at a constant thickness of about 1 mm with a blade. The purpose of this coating is to fill in the spaces between yarns" (column 4, lines 8-9).

Regarding Claims 7 and 9, applicant's specification states that "a continuous process includes both truly continuous processes and semi continuous processes in which there are periodic stops for product type changes, other line medications or any other reason" (page 6, lines 22-25). Rubin's Specific Example 2 teaches the method of coating the fabric to be accomplished in 3 different passes. Pass One, wherein the fabric is coated with a mixture of acrylic latex polymers, fluorochemicals, and antibacterial, chemicals, Pass Two,

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wherein, the fabric remains on the tenterframe and is coated with a fine layer of acrylic latex polymers, flurochemicals, and antimicrobial agents, and Pass Three, which is identical to Pass Two. The fabric is also dried in an oven between passes.

Rubin does not disclose the use of a silicone based quaternary ammonium salt.

Omura's teachings are discloses above and applied in the same manner. As noted above, Omura discloses the use of quaternary ammonium salt-containing polysiloxane as an antimicrobial agent.

It is generally considered to be prime facie obvious to combine compounds each of which is taught by the prior art to be useful for the same purpose in order to form a composition that is to be used for an identical purpose. The motivation for combining them flows from their having been used individually in the prior art, and from them being recognized in the prior art as useful for the same purpose. As shown by the recited teachings, instant claims are no more than the combination of conventional components of antimicrobial agents. It therefore follows that the instant claims define prime facie obvious subject matter. Cf. In re Kerhoven, 626 F.2d 848, 205 USPQ 1069 (CCPA 1980). It would have been obvious to a person of ordinary skill in the art to substitute one antimicrobial agent for another capable of performing the same function.

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3. Claims 1, 4-6, 9-10, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brier (US Patent 6,756,076) in view of Omura et al. (US Patent 6,384,254) or vice versa.

Brier teaches "a process for producing hydrophobic cotton fabric view a multi-step manufacturing process that results in a fabric that retains its hydrophobic characteristics even after numerous machine washings. Cotton fabric according to the process disclosed by Brier is suitable for use in various applications wherein a hydrophobic cotton material is desired, such as clothing, undergarments, incontinence products, underarm cotton shields, bedding products, diapers, apparel, and lingerie items, furniture coverings and fabric, curtains, gloves, footwear, headwear, tents, sleeping bags, and lab coats (column 1, lines 55-66).

Brier further teaches "the process may be adapted to produce fabric having both antibacterial and water repellant properties according to the following steps:

1. bleaching the cotton fabric with a suitable optical whitener
2. affixing the fabric to a conveying machine
3. applying approximately 3lbs of antibacterial substance and 2lbs of water repellent for each approximately 100lbs of cotton fabric by conveying the fabric through a pad bath
4. conveying the fabric through a tenter frame machine having a heating device set at approximately 325 degrees F at a speed of approximately 40 yards per minute



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5. repeating step 4 a second time to effect curing of the chemicals thereby resulting in a water resistant cotton fabric. Brier uses the bacteriostat, triclosan, however, the use of any suitable equivalent compound is considered to be within the scope of their invention" (column 3, lines 41-60, column 4, lines 1-10).

Regarding Claim 9, the process of Brier described above states in step 4, the fabric is conveyed through a tenter frame machine. This would indicate to one of ordinary skill in the art that the fabric is being continuously pulled through the pad bath.

Regarding Claim 10, according to the drawings supplied by Brier, one of ordinary skill in the art would recognize that in order for the fabric to be fed through the tenter frame, it would have to be wound in a roll and mounted onto the apparatus.

Brier does not disclose the use of a silicone based quaternary ammonium salt.

Omura's teachings are described above and applied in the same manner.

It is generally considered to be prime facie obvious to combine compounds each of which is taught by the prior art to be useful for the same purpose in order to form a composition that is to be used for an identical purpose. The motivation for combining them flows from their having been used individually in the prior art, and from them being recognized in the prior art as useful for the same purpose. As shown by the recited teachings, instant claims are no more than the combination of conventional components of antimicrobial agents. It therefore follows that the instant claims define prime facie obvious subject

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matter. Cf. In re Kerhoven, 626 F.2d 848, 205 USPQ 1069 (CCPA 1980). It would have been obvious to a person of ordinary skill in the art to substitute one antimicrobial agent for another capable of performing the same function.

4. Claims 1, 3-5, 7, 9, 11, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy et al. (US Patent 5,707,736) in view of Omura et al. (US Patent 6,384,254) or vice versa.

Levy teaches a "dry, disposable, polymeric products having sustained-release anti-microbial activity, the product consisting essentially of a polymeric material selected from the group consisting of fibers, fabrics, sheets, films, and other stable woven, non-woven, and knitted materials prepared from natural, man-made and synthetic polymers and an amine salt anti-microbial agent, the anti-microbial agent being incorporated in the polymeric material without an intermediary adhesive, carrier or linking agent and being releasable therefore in anti-microbial effective amounts" (abstract).

Levy further teaches the products are "produced by: the polymeric materials are brought into contact with a solution of the antimicrobial agent by immersion, spraying, or coating; the solvent is separated from the treated polymeric material by soaking, evaporation, centrifugations, and the polymeric materials are then dried by utilizing forced hot air, oven drying, air at room temperature, microwave driving, or the use of heated drying drums, and vacuum chambers" (column 4, lines 19-28).

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Regarding Claim 3, Example 4 of Levy describes "yarns made of cotton, viscose, and nylon were soaked in aqueous solutions of chlorohexidine hydrochloride or chlorohexidine gluconate, dried, and their antimicrobial activity was tested" (column 5, lines 65-67, column 6, lines 1-3).

Regarding Claims 7, 9, and 16-17 Levy additionally teaches, "the fabric is immersed in a tub containing a diluted anti-microbial agent at room temperature, in a continuous process, the fabric is partially dried by being pressed with a padder. Drying is done by a dryer, i.e., a hot air blowing chamber or a hot drum chamber, heated up to 120 C" (column 4, lines 28-33).

Regarding Claim 11, Example 1 of Levy describes "a matrix made of cotton gauze 75mm wide was soaked in 0.5% chlorohexidine gluconate aqueous solution at 25C and dried by forced hot air at 60C in a continuous process" (column 4, lines 60-64).

Regarding Claim 15, the examiner is interpreting the immersion step described above, by soaking and centrifugation to include the use of a washing machine. Standard washing machines uses these two functions as part of their cycles. The examiner is further interpreting the drying step utilizing a heated drying drum to include standard clothing drying.

5 Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Omura et al. in view of Ohno et al. (US Patent 4,993,651).

Rubin's teaches are described about and applied in the same manner.

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Rubin's does not teach a method of providing antimicrobial properties to a composite yarn wound on a bobbin.

Ohno teaches a method of winding yarn onto a bobbin.

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the bobbin threading teachings of Ohno with the anti-microbial coating techniques of Rubin in order to obtain a bobbin of yarn to be used in standard sewing machines. Applicant would have a reasonable expectation that the yarn would possess the anti-microbial properties desired, since the yarn would absorb the antimicrobial agent in the bath.

6. Claims 19-20, 22, 29-30, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omura et al. (US Patent 6,384,254) in view of Smith III et al. (US Patent 6,759,127).

Omura's teaching are described above and applied in the same manner.

Omura does not disclose a copolymer of a long chain ( $C_{12}$  to  $C_{20}$ ) alkyl dimethylaminotrihydroxysilylpropyl ammonium halide and a chloroalkyl trihydroxysilane.

Smith discloses a textile article having flame resistant properties. Smith also teaches "for those cases where antimicrobial properties are desired, an antimicrobial agent is added to the chemical treatment. Smith's preferred antimicrobial agent is an organosilane composition comprising about 16% by weight of chloropropyl trihydroxysilane and about 84% by weight of Octadecylaminodimethyl trihydroxysilylpropyl Ammonium Chloride, available from

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Aegis under the trademark AEM 5700. Applicant's specification discloses, "particularly preferred for use as the antimicrobial agent is a copolymer (which may or may not include partially or fully hydrolyzed forms) of octadecylaminodimethyltrihydroxysilylpropyl ammonium chloride and chloropropyltrihydroxysilane. Suitable such antimicrobials include, the antimicrobial agents from Aegis Environments such as AEM 5700 Antimicrobial, AEM 5772 Antimicrobial and AEGIS Antimicrobial" (page 6, lines 4-11).

It is generally considered to be prime facie obvious to combine compounds each of which is taught by the prior art to be useful for the same purpose in order to form a composition that is to be used for an identical purpose. The motivation for combining them flows from their having been used individually in the prior art, and from them being recognized in the prior art as useful for the same purpose. As shown by the recited teachings, instant claims are no more than the combination of conventional components of antimicrobial agents. It therefore follows that the instant claims define prime facie obvious subject matter. Cf. In re Kerhoven, 626 F.2d 848, 205 USPQ 1069 (CCPA 1980).

7. Claims 19, 21-22, 25, 27, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rubin et al. (US Patent 5,565,265) in view of Smith III. et al. (US Patent 6,759,127).

The teachings of Rubin are discussed above and applied in the same manner.

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Rubin does not teach the use of a copolymer of a long chain octadecylaminodimethyltrihydroxysilylpropyl ammonium halide and chloropropyltrihydroxysilane.

Smith discloses a textile article having flame resistant properties. Smith also teaches "for those cases where antimicrobial properties are desired, an antimicrobial agent is added to the chemical treatment. Smith's preferred antimicrobial agent is an organosilane composition comprising about 16% by weight of chloropropyltrihydroxysilane and about 84% by weight of Octadecylaminodimethyltrihydroxysilylpropyl Ammonium Chloride, available from Aegis under the trademark AEM 5700. Applicant's specification discloses, "particularly preferred for use as the antimicrobial agent is a copolymer (which may or may not include partially or fully hydrolyzed forms) of octadecylaminodimethyltrihydroxysilylpropyl ammonium chloride and chloropropyltrihydroxysilane. Suitable such antimicrobials include, the antimicrobial agents from Aegis Environments such as AEM 5700 Antimicrobial, AEM 5772 Antimicrobial and AEGIS Antimicrobial" (page 6, lines 4-11).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have substituted one antimicrobial agent for another, since both references teach methods of giving fabrics antimicrobial properties.

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8. Claims 19-20, 22-24, 27-28, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brier (US Patent 6,756,076) in view of Smith III et al. (US Patent 6,759,127).

The teachings of Brier are discussed above and applied in the same manner.

Brier does not teach the use of a copolymer of a long chain octadecylaminodimethyltrihydroxysilylpropyl ammonium halide and chloropropyltrihydroxysilane.

Smith discloses a textile article having flame resistant properties. Smith also teaches "for those cases where antimicrobial properties are desired, an antimicrobial agent is added to the chemical treatment. Smith's preferred antimicrobial agent is an organosilane composition comprising about 16% by weight of chloropropyltrihydroxysilane and about 84% by weight of Octadecylaminodimethyltrihydroxysilylpropyl Ammonium Chloride, available from Aegis under the trademark AEM 5700. Applicant's specification discloses, "particularly preferred for use as the antimicrobial agent is a copolymer (which may or may not include partially or fully hydrolyzed forms) of octadecylaminodimethyltrihydroxysilylpropyl ammonium chloride and chloropropyltrihydroxysilane. Suitable such antimicrobials include, the antimicrobial agents from Aegis Environments such as AEM 5700 Antimicrobial, AEM 5772 Antimicrobial and AEGIS Antimicrobial" (page 6, lines 4-11).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have substituted one antimicrobial agent taught

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by Brier for another taught by Smith, since both references teach methods of giving fabrics antimicrobial properties.

9. Claims 19, 21-23, 25, 27, 29, and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy et al. (US Patent 5,707,736) in view of Smith III et al. (US Patent 6,759,127).

Levy teachings are described above and applied in the same manner.

Levy does not disclose the use of a copolymer of a long chain octadecylaminodimethyltrihydroxysilylpropyl ammonium halide and chloropropyltrihydroxysilane.

Smith discloses a textile article having flame resistant properties. Smith also teaches "for those cases where antimicrobial properties are desired, an antimicrobial agent is added to the chemical treatment. Smith's preferred antimicrobial agent is an organosilane composition comprising about 16% by weight of chloropropyltrihydroxysilane and about 84% by weight of Octadecylaminodimethyltrihydroxysilylpropyl Ammonium Chloride, available from Aegis under the trademark AEM 5700. Applicant's specification discloses, "particularly preferred for use as the antimicrobial agent is a copolymer (which may or may not include partially or fully hydrolyzed forms) of octadecylaminodimethyltrihydroxysilylpropyl ammonium chloride and chloropropyltrihydroxysilane. Suitable such antimicrobials include, the antimicrobial agents from Aegis Environments such as AEM 5700 Antimicrobial, AEM 5772 Antimicrobial and AEGIS Antimicrobial" (page 6, lines 4-11).



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It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have substituted one antimicrobial agent taught by Brier for another taught by Smith, since both references teach methods of giving fabrics antimicrobial properties.

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rubin et al. (US Patent 5,565,265) in view of Ohno et al. (US Patent 4,993,651) and further in view of Smith et al. (US Patent 6,759,127).

Rubin's, Ohno's and Smith's teachings are described about and applied in the same manner.

Rubin's does not teach a method of providing antimicrobial properties to a composite yarn wound on a bobbin. Rubin also does not disclose the use of a copolymer of a long chain octadecylaminodimethyltrihydroxysilylpropyl ammonium halide and chloropropyltrihydroxysilane.

Ohno teaches a method of winding yarn onto a bobbin.

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the bobbin threading teachings of Ohno with the anti-microbial coating techniques of Rubin in order to obtain a bobbin of yarn to be used in standard sewing machines. Applicant would have a reasonable expectation that the yarn would possess the anti-microbial properties desired, since the yarn would absorb the antimicrobial agent in the bath.


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**Conclusion**


No claims are allowable. **Due to the new grounds for rejection, this action is made Non-Final.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa S. Mercier whose telephone number is (571) 272-9039. The examiner can normally be reached on 7:30am-4pm Mon through Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (571) 272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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